E-Rate Deployed Ubiquitously (EDU) 2011 Pilot Program

WC Docket No. 10-222

The Digital Advantage Program

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"Here, in country that invented the Internet, every child should have the chance to get online…That's how we'll strengthen America's competitiveness in the world."

President Barack Obama. December 6, 2008

Introduction

Unfortunately, in America there exists a digital divide, a gap between lower income students, who lack access to technology, and others. Many families cannot afford a computer let alone a monthly Internet service. As students get older, they fall further and further behind their peers who do have access to the digital learning landscape of the Internet. Studies show that students who are equipped with digital technologies have higher academic achievement, attendance, and graduation rates. The Coachella Valley Unified School District (CVUSD) serves one of the fastest growing populations in California. The district is comprised of 96.7% Latinos, many of whom speak English as a second language. Nearly 2,500 students belong to the families of seasonal migrant laborers and over 86.5% of the students qualify for the Free or Reduced Price Meal Program. Not surprisingly the district has a high dropout rate and struggles to meet academic testing standards. But an innovative pilot program offers hope.

The Digital Advantage program rewards ninth grade students who meet academic and attendance criteria with netbook computers and Internet access. Students must make benchmarks in the "Four A's": Academics, Attendance, Activity, and Attitude. Netbooks are awarded to every ninth-grader who achieves the Four A's at the end of the Semester. Similar programs in Arizona have reduced dropout rates and enhanced academic performance. This will be the first known program of its kind in California. CVUSD needs funding to launch phase two of the Digital Advantage program.

The Digital Advantage Program consists of two phases: 1) Netbook Distribution and 2) Broadband Access. Life and learning is happening online. Limited home and campus access to computers and the Internet among Latinos is a critical problem that this school district is addressing. Though the original genesis of this program was a desire by the CVUSD to bridge the digital divide between haves and have-nots in an educational context, it became clear that the problem of lack of access to the Internet was endemic to the entire community. This is a function of low-income, minority residents and a general lack of infrastructure as private sector service providers are reluctant to invest in this rural community. The Digital Advantage Program provides the most promising solution for broadband connectivity.

Although normally not classified as a allowable item for E-Rate discount, the Coachella Valley Unified School District requests FCC funding to construct WiMAX towers that will enable their Digital Advantage students and community to access free Broadband Internet service.

(1) A full description of the current or planned Applicant Wireless Program, including but not limited to:

a. The nature of the Applicant Wireless Program, including the extent to which the use of connectivity is interactive and utilizes the Internet.

The Digital Advantage Program addresses a compelling problem in the Coachella Valley Unified School District service area - extremely high dropout rates and poor academic performance among some of the nation's most poor and underserved minority youth populations. This problem further complicates a cycle of poverty in these rural communities, contributing to joblessness, crime and other societal problems. But by using schools, the heartbeat of rural communities, to disseminate access to the Internet through hardware distribution and WiMAX broadcasting, the cycle of poverty can be mitigated. The Digital Advantage Program aims to retain students transitioning from middle school to high school. By providing successful students' with netbooks and access to the Internet, they are incentivized to stay in school while also encouraging their peers' to join the program.

Access to computers and high speed Internet among Latinos is a critical problem in the Coachella Valley. Learning opportunities are stunted for Latino students because many residents cannot afford computers or broadband service plans. As a result, Latinos and other ethnic groups face a disparity and are "disproportionately represented" among the population of people held back by limited access to technology. This lack of access to information technology combined with language barriers, already high drop out rates and historically substandard academic performance within the Latino community further exacerbates an existing recipe for disaster. By directly addressing the digital divide we are helping to break the cycle of poverty in these communities. The Eastern Coachella Valley and Salton Sea area are agricultural communities filled with migrant and seasonal laborers. The area has some of the highest unemployment rates in the United States - hovering between 22-27% in some areas. Many of the living conditions are nothing short of shanty-towns and mobile home parks - some without electricity or running water. The proposed funded service areas customers can be characterized as some of the most impoverished Hispanic communities in the United States. Hispanic and Native American Indians make up 85% of the local community. Nearly 80% of the homes speak Spanish as their native and predominate language. About one in four households report an annual income of less than $25,000 with another 25% reporting annual income between $25,000 and $39,999. This represents an enormous amount of people living below the federal poverty level for income. Not surprisingly, 50.7% of those adult customers living in the service area have not achieved a high school diploma. Only 10.3% have achieved a bachelor's degree or higher.

The Digital Advantage Program addresses the following: 1) off-campus education with access and equipment to facilitate greater exposure to the Internet and lower high school dropout rates 2) provide access to broadband in a rural underserved areas 3) improve access to broadband in a underserved area that will create a ripple effect stimulating community demand for broadband, the creation of economic growth, and eventually job creation.

The Digital Advantage Program provides an effective solution by creating a merit based system that rewards academic and attendance performance standards with broadband equipment and access to the Internet, which together further project a students' learning opportunities. Hundreds of students, and by proxy their families, will be able to access the Internet and benefit from all that is available to them online: education, training, job information and opportunities. By using rural school sites as a WiMax broadcasting platform, the school district will be able to impact the greater population as a hub for broadband access for the greater community.

The program begins with laptop distribution to deserving students that meet the previously mentioned benchmarks in the "Four A's": Academics, Attendance, Activity, and Attitude. Getting laptops to kids is the first step in bridging the digital divide. The second step involves providing access to the Internet through broadband technologies. Currently, students only have access to broadband Internet while on school premises.

To access broadband Internet off-campus, aircards were installed in student's netbooks but have been found to be unreliable in rural geographically located homes. The only technology that will meet the needs of the Digital Advantage Program involves the erection of WiMAX towers at school sites. WiMAX, meaning Worldwide Interoperability for Microwave Access, is a telecommunications technology that provides wireless transmission of data using a variety of transmission modes, from point-to-multipoint links to portable and fully mobile Internet access. Towers, depending on height, have a range of approximately 10 miles. With this technology, students who are Digital Advantage participants, could connect from their home with their awarded netbooks and interact with fellow students and teachers.

A variety of software and portal systems will create synergies and improve interactivity between users and the Internet. The Aeries Browser Interface (ABI) Parent Portal allows students to participate in discussion boards/forums, submit assignments, access instructional materials, and maintain records. Parents are able to access the ABI portal to monitor their child's daily progress. Another interactive service that students and parents can access is the Community Web Portal provided by the School Fusion Company (http://www.schoolfusion.com). A dissemination of information such as school and community events, updates, and a repository of best practices can be shared and accessed by teachers, parents and students. The Digital Locker service will serve as a database and tracking system for students' entire academic career and can be accessed by colleges and universities. Altogether, these services will enhance the learning experience of students and further their educational career.

b. How long the Applicant Wireless Program been in operation and the mobile wireless device(s) being used,

Phase 1 of the Digital Advantage Program was launched in April of 2010 with the distribution of just over five hundred 9 inch Dell Inspiron Mini 10 netbooks. The total cost per student netbook was $345 with a total project cost of $200,000 provided by funding from the American Reinvestment Recovery Act (ARRA). An additional 500 plus netbooks will be issued to students in February of 2011.

Currently, CVUSD has extensive experience in offering broadband Internet. The District Office and Coachella Valley High School utilize towers to broadcast service while the other school sites rely on Wi-Fi service. By upgrading the two current towers to WiMAX along with the addition of new WiMAX towers to three other school sites, CVUSD will canvas the entire community with free broadband Internet.

System Design:

The system is designed to provide a free, wireless broadcast into underserved areas of the rural communities via Worldwide Interoperability for Microwave Access (WiMAX) tower technology. Towers will be strategically place on three school sites throughout the service area to

maximize broadband access to the community. The systems design elements include end-user to the network's primary Internet Point(s) of Presence (POP).

The key network components already existing are:

1. POP at each school site that has an existing Internet connection provided by Time Warner
2. Local Area Network (LAN) at each school
3. Gig fiber available to extend out to the wireless base-station Point of Connection (POC)
4. Property that has been surveyed and selected on the school site for WiMAX towers.

The key network components that need to be added:

1. Broadband WiMAX tower for last mile wireless connectivity
2. Base stations with antennas located on the tower
3. Power to the tower
4. Connectivity to the POC at the tower to the existing POP
5. Subscriber units to be deployed at the consumer sites**.**

Additional maintenance and security are required and itemized in the attached budget.

c. A description of any technical issues associated with implementing the Applicant Wireless Program, including an analysis of any problems with the availability of wireless access to students or patrons off the school or library premises and how those issues are being or will be addressed by the school or library,

In order to provide uninterrupted individual service, a separate circuit for the WiMAX tower at the school community anchor institutions will be installed to differentiate from the on-campus broadband Internet. Troubleshooting and other technical issues can be addressed by the school district's IT department.

Once the WiMAX system is installed, it will cover the entire service area. The CVUSD school's with WiMAX towers will essentially become Community Anchor Institutions, providing much needed broadband Internet services. Local business, other educational institutions like the new community college, hospitals and medical centers as well as public safety groups and local non-profits will all be able to access the Internet for free from any location. Beyond just broadcasting free Internet service to the entire community, the school district is also using existing computer lab and classroom space to create community information centers. These computer areas will be staffed by school district personnel and open to the public Monday through Friday from 4pm to 10pm. This creates a place where anyone can come to use computers and high speed Internet connections especially in the rare situation when WiMAX service is unavailable.

d. What training has been or will be provided to teachers, librarians, students or parents to implement the Applicant Wireless Program, and

All of the teacher's at CVUSD, approximately 1700, have laptops and are trained. Additional teacher and parent training will be provided by coaches at each school site as necessary. Students are currently proficient and are given minimal training as required.

CVUSD has extensive experience in offering broadband Internet. The District Office and Coachella Valley High School utilize towers to broadcast service while the other school sites rely on Wi-Fi service. By upgrading the two current towers to WiMAX along with the addition of new WiMAX towers to three other school sites, CVUSD will canvas the entire community with free broadband Internet.

e. The extent to which the Applicant Wireless Program is integrated with federal, Tribal, state, regional or local governmental or non-profit initiatives to achieve educational or community access outcomes;

This project has incorporated a public - private partnership among government, non-profit and for-profit entities, and other key community stakeholders. Partnership with local broadband technology partner Time Warner serves as the initially piping of high bandwidth Internet feeds to the school sites prior to broadcast. Additionally, in concert with the last mile laptop distribution program with the school district, numerous private sector sponsors of individual laptops will make this a true community - wide effort.

The Digital Advantage Program and broadband Internet provided by the WiMAX towers will integrate with the federal Broadband Technology Initiative (http://www2.ntia.doc.gov/), the State of California 21st Century Community Learning Center's initiative (http://www.cde.ca.gov/ls/ba/cp/) and the After School Education & Safety Program (ASES) (http://www.cde.ca.gov/ls/ba/as/).

(2) The poverty level based on the percentage of students eligible for a free or reduced-price lunch under the national school lunch program (NSLP) or a federally approved alternative mechanism, and the current discount rate of the school or library;

Over 84.2% of the students qualify for the Free or Reduced Price Meal Program and the current discount E-Rate of the district is 88%. Please Attachment CVUSD E-RATE DISCOUNT MATRIX for more information.

(3) The financial need of the school or library, including any additional budgetary hardships, notwithstanding the school or library's current discount rate;

The State of California is facing massive budget deficits for the foreseeable future. A slashing of the state education budgets has victimized our school district and we are laying off teachers and staff to survive. Our district is entirely reliant on grant programs to be able to provide innovative programs of any kind- and we are in desperate need. The level of federal assistance we are requiring is commensurate with many of the other federally funded education programs in our district - generally 100% of our need.

(4) All costs, including those eligible for E-rate support and those not eligible for E-rate support, associated with implementing the Applicant Wireless Program, including but not limited to costs for equipment such as e-readers or laptops, access and connection charges, teacher training, librarian training, or student/parent training;

Please see attachment "CVUSD Digital Advantage Program Budget" for details on the proposed budget and costs. The total budgeted costs are $1,615,075 and the total budgeted costs with E-Rate Discount are $193,809. All teaching staff currently uses laptops and are already trained. Any additional teacher & librarian training needed will be provided by CVUSD as an in-kind cost.

(5) The committed school or library resources available to implement the entire Applicant Wireless Program, including whether those funds are from the school or library's general budget or from an outside funding source;

Organizational Readiness

We have already completed all planning sessions and operational requirements to implement the program. We have an existing information technology department that will implement the program. The personnel in this department are already skilled at implementing information technology and equipment tracking and inventory programs.

The broadband service network will be managed by the Coachella Valley Unified School District through it information technology department. This department is already fully staffed with IT professionals and will be augmented through granted funding with additional personal to manage the Digital Advantage Program. Added to that, the school district will outsource maintenance on the towers and broadcasting equipment itself through a low-bid private sector service provider.

The IT department of CVUSD consists of 17 full-time employees, 6 of which are technicians. Currently, CVUSD has extensive experience in offering broadband Internet. The District Office and Coachella Valley High School utilize towers to broadcast service while the other school sites rely on Wi-Fi service. By upgrading the two current towers to WiMAX along with the addition of new WiMAX towers to three other school sites, CVUSD will canvas the entire community with free broadband Internet. Additional required training will be given to the IT department employees and technicians by WiMAX vendor/contractor. Additional support will available by vendor for duration of project lifespan.

Project Readiness

The majority of the planning work required for this project has already been done. The site placement, environmental, archeological survey, system design and various other plans are complete. Additional direction from the FCC and tower site approval from the CA Department of School Architecture (DSA) are still required, however, this project is shovel ready.

The school district will outsource maintenance on the towers and broadcasting equipment itself through a low-bid private sector service provider. Once approved for funding, the school district will prepare a Request for Proposal from qualified private sector organizational partners. Once selected, the private sector partner will be managed by the school district's IT department.

Customer service and network management will occur in the existing IT department as it currently does now.

Governance and management will be conducted through the already existent chain of command at the school district, with the IT department reporting directly to the Superintendent. Because the program is free to community members, there are no requirements for sales or billing support systems. Other in-kind services include the operational costs, personnel and maintenance of the system and community labs.

(6) The effect EDU2011 support for off-premise connectivity is likely to have upon the school's or library's projects;

Schools are the heartbeat of any community. They touch working families in each neighborhood and rural area through children; a generation most likely to adopt broadband. Using schools to provide equipment, education, training, awareness and access to the Internet is innovative. Using schools to broadcast WiMAX to the local community is cutting edge. Quite simply, conventional approaches are not an option in this area. These large, rural geographic areas, predominantly filled with migrant working families, will not realize broadband infrastructure for decades to come if we are to rely exclusively on the private sector. By using the network of schools, distributing equipment through students and broadcasting from school campuses, we will greatly accelerate broadband adoption and usage, furthering economic development and educational learning success in these areas.

(7) An analysis of the cost-effectiveness of the current or planned Applicant Wireless Program as compared to the use of other types of technology that would also meet the Program's objectives;

The WiMAX solution we have selected is extremely cost effective given other broadband technology alternatives. According to a recent study, (http://www.prnewswire.com/news-releases/analysis-by-brattle- group-principal-coleman-bazelon-demonstrates-that-wireless-broadband-access-in-rural-us-has-significant-cost-advantages-over- wired-access-89121657.html) wireless broadband access has significant cost advantages over wired access in reaching homes in rural areas, making it an attractive and efficient option for meeting the broadband needs of rural America. Applying a cost per mile of $12,500 for a cable distribution network and taking into account road and housing density in rural areas, the analysis found that the average cost per household for wireline broadband infrastructure is an estimated $2,426.

The cost per household of the wireless WiMAX coverage in unserved/underserved areas is $226.01 per household (formula: total cost $1,615,075 / 7146 households). This is well below industry standards even for wireless broadband access.

Specific advantages for using this particular technology strategy, taking into account service offering capacity, speed, reliability, and cost effectiveness.

1. Wireless last mile is required for the project since there is a lack of infrastructure to support high-speed access and the broadband incumbents have no plans to provide this.

2. With WiMAX, the speed and reliability are proven in the type of application proposed

3. The pro-rated cost to subscriber for Customer Precise Equipment (CPE) is in the sub $400 range.

(8) Any relevant technology planning documents and, if applicable, a statement of long-term objectives for the Program;

The long-term objectives are to contribute to the enduring sustainability of the Digital Advantage program by building technological infrastructure that will fuel long-term educational opportunities online, curb high school dropout, and bridge the digital divide gap of the community.

Please see the following attachments in reference to technology planning documents:

Attachment 1 – Total Coverage Area Map

Attachment 2 – K-12 Site Map

Attachment 3 – Mecca School Site Map

Attachment 4 – West Shores High School Site Map

(9) A description of the specific measures taken, or that will be taken, to ensure compliance with the Children's Internet Protection Act and measures to protect against waste, fraud, and abuse; and

A CIPA compliant open DNS filtering system is currently in place to protect against waste, fraud and abuse. This system blocks student's from accessing inappropriate sites and material. The district IT department monitor's and installs security settings on student notebooks that make it impossible to circumvent the filtering system.

(10) A description of internal policies and enforcement procedures governing acceptable use of the wireless devices used in the Program off the school or library's premises.

This proposed project is a completely open network available to literally anyone in the public able to receive the signal and connect with a WiMAX compatible device. No single Internet application or content is favored over others as we are simply providing a connection to the Internet. Any network management policies (if any) will be prominently displayed on a landing page upon connection. Changes to these policies (of any) will be noticed in a highly visible way. The issue of unacceptable use it thoroughly covered in CVUSD Board Policy AR 6163.4 (a & b) and all users will be made aware that inappropriate use of electronic information resources could be a violation of local, sate and federal laws. Students and their parents will be obligated to sign a CVUSD Acceptable Use Policy (see attached) that if violated will result in the loss of notebook and broadband Internet privileges. We will employ standard best efforts for Internet delivery and allocate capacity in an equitable way through uniform broadcasting. The service will be provided free of charge to the community.

Required Information (schools only). **The applications filed by schools also must contain the following information:**

(1) The location of the school;

The district office of CVUSD is noted on the chart below. All schools within the district currently have on-campus broadband Internet available. The District Office and Coachella Valley High School currently have WiMAX towers in place. Three of the other school sites will have new WiMAX towers and serve as Community Anchor Institutions for the homes of the Digital Advantage students and other entities.

(2) The name of the school applicant, along with a complete list of the individual schools that will be served, including their billed entity numbers;

Please see the chart below:

Facility Name	Organization/Applicant	Address	City	State	Zip	Facility Type	Billed Entity #
District Office	Coachella Valley Unified School District (CVUSD)	87-225 Church Street	Thermal	CA	92274	Public School	143707
Coachella Valley High School	Coachella Valley Unified School District (CVUSD)	83-800 Airport Blvd	Thermal	CA	92274	Public School	104624
Las Palmitas Elementary/Toro Canyon Middle School/Desert Mirage High School (All one site)	Coachella Valley Unified School District (CVUSD)	86-150 Avenue 66	Thermal	CA	92274	Public School	16027555/16027556/16027557
Oasis School	Coachella Valley Unified School District (CVUSD)	88175 74th Avenue	Thermal	CA	92274	Public School	104622
Westside School	Coachella Valley Unified School District (CVUSD)	82-225 Airport Blvd	Thermal	CA	92274	Public School	104625
Mecca School	Coachella Valley Unified School District (CVUSD)	65-250 Coahuilla	Mecca	CA	92254	Public School	104588
North Shore Elementary School	Coachella Valley Unified School District (CVUSD)	96-100 70th Ave	Mecca	CA	92254	Public School	Not Available
Saul Martinez Elementary	Coachella Valley Unified School District (CVUSD)	65-705 Johnson Street	Mecca	CA	92254	Public School	198795
West Shores High School	Coachella Valley Unified School District (CVUSD)	2381 Shore Hawk	Salton City	CA	92275	Public School	104626

Note: All of the above schools will be served by phase two of the Digital Advantage Program, however, only the three highlighted schools will have new WiMAX towers funded through this grant application (Las Palmitas Elementary/Toro Canyon Middle School/Desert Mirage High School [all one site], Mecca School, West Shores High School).

(3) A description of the school district or school, including the type of school, such as private, public, charter, or other special type of school;

Please see he above chart. CVUSD is a K-12 public school district.

(4) A description of the Program's curriculum objectives, the grade levels included, and the number of students and teachers involved and/or being served as part of the program; and

The curriculum objectives of the Digital Advantage Program are as follows:

A) Bridge the digital divide

B) Improve academic performance

C) Increase graduation rates

D) Expand learning beyond school walls and constraints

The Digital Advantage Program targets eighth through twelfth grade students. Currently there are five hundred ninth graders participating and forty teachers involved.

(5) A summary of any data collected by the school on Program outcomes and achievement of Program objectives.

Due to the fact that the Digital Advantage Program has only been in effect for eight months, data is currently unavailable. However, our district has based our program off of the pilot program of a similarly demographic school district in Arizona that does have recent data available. The Sunnyside Unified School District (SUSD) in Tucson, Arizona began a "Digital Advantage Initiative" in 2008 by focusing its efforts on freshman students. SUSD aimed to improve students' ability to achieve by providing them with laptop computers that could be taken from the campus. The results after the first year of implementation were outstanding showing an overwhelming success rate in student attendance and achievement. Dropout rates after netbooks were issued have significantly decreased as well, in some cases nearly 50% at the end of the third quarter. Students, equipped with information technology, take greater pride in their academic performance and now have access to media and exciting online learning opportunities.

We are modeling our program after the Sunnyside School District program and tracking the following metrics to measure the success of our program:

- We will be tracking the GPA of students in the program
- We will be tracking the attendance rate of students in the program
- We will be tracking the graduation rate of students in the program
- We will be tracking the behavioral reports of students in the program

• We will be tracking the ongoing use of the netbooks and time spent accessing the Internet

At Sunnyside School District, the program generated the following results in the first year of operation:

-Freshmen earning a 2.5 GPA had increased by over 20% from the past year, resulting with a 49% rate of freshmen earning a 2.5 GPA or better.

-Attendance rates rose as 71.4% of freshman maintained a 95% attendance rate during the first semester.

-There was a decrease of 63% in unexcused absences from the previous year. Most importantly, a total of more than 710 students were in the Class of 2009, up from a total of 598 in 2008.

Conclusion

The Digital Advantage Program provides the most promising solution for broadband connectivity. Although normally not classified as a allowable item for E-Rate discount, the Coachella Valley Unified School District desperately requires FCC funding to construct WiMAX towers that will enable their Digital Advantage students and community to access free Broadband Internet service. The Digital Advantage Program is more than a local laptop program for low-income, minority students. It is a life-changing, impactful program that has tremendous ripple effects throughout the Coachella Valley and Imperial Valley areas, some of the most poor and underserved rural communities in the United States. Without FCC funding, the students and residents of these areas are unlikely to receive broadband Internet for the foreseeable future.